

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (original): An image processing device comprising:

(a) a detecting device for detecting defect portions in an image represented by electronic information;

(b) a deciding device for selecting a correction method from among a plurality of types of correction methods for correcting a defect portion, or for deciding a range of application of each of at least two correction methods correcting a defect portion; and

(c) a correction device for correcting defect portions in the electronic information by applying the correction method selected by the deciding device, or for correcting defect portions in the electronic information by applying the at least two methods in the application ranges decided by the deciding device.

2. (original): The image processing device according to claim 1, wherein the electronic information represents an image recorded on image recording material, and the detection device detects defect portions in the image from data obtained from irradiating the image recording material on which the image is recorded with non-visible light, and photoelectrically converting non-visible light after irradiation of the image therewith to produce said data.

3. (original): The image processing device according to claim 1, wherein the deciding device selects the correction method or decides the application ranges using at least one characteristic of the defect portion selected from the group consisting of: a correlation of density changes in each component color in an area adjacent to the defect portion; density distribution in areas surrounding the defect portion of the image; an information as to whether the defect portion is present within a principal area of the image or not; and extent of overlap of the defect portion with a principal area of the image.

4. (original): The image processing device according to claim 2, wherein the deciding device selects the correction method or decides the application ranges based on at least one of an amount of transmitted or reflected non-visible light in an area adjacent to the defect portion, and a correlation between a change in an amount of transmitted or reflected non-visible light in an area adjacent to the defect portion when the non-visible light is irradiated onto the image recording material, and a change in an amount of transmitted or reflected visible light in an area adjacent to the defect portion when visible light is irradiated onto the image recording material.

5. (original): The image processing device according to claim 1, wherein the plurality of types of correction methods include an interpolation method in which information for correcting a defect portion is obtained by interpolation from information in an area surrounding the defect portion, and a brightness adjustment method in which image information is corrected such that the brightness of a defect portion changes.

6. (original): The image recording device according to claim 2, wherein when light of a predetermined plurality of wavelength regions from among non-visible and visible light regions is irradiated onto the image recording material, then if the amount of non-visible transmitted light in the defect portion is less than the amount of non-visible transmitted light in an area surrounding the defect portion, and if the amount of transmitted light of at least one wavelength region from among the plurality of wavelength regions in the defect portion is greater than the amount of transmitted light in the area surrounding the defect portion, the deciding device selects as the correction method an interpolation method in which information for correcting a defect portion is obtained by interpolation from information in an area surrounding the defect portion.

7. (original): The image recording device according to claim 2, wherein when light of a predetermined plurality of wavelength regions from among non-visible and visible light regions is irradiated onto the image recording material, then if the amount of any of non-visible transmitted light and transmitted light of the plurality of wavelength regions in the defect portion is less than the amount of any of non-visible transmitted light and transmitted light of the plurality of wavelength regions in an area surrounding the defect portion, the deciding device selects as the correction method a brightness adjustment method in which image information is corrected such that the brightness of the defect portion changes.

8. (original): An image processing device comprising:

(a) a feature amount calculation device for use with electronic information representing an image having a defect portion, the feature amount calculation device being for calculating

respective amounts of image features in a plurality of different directions from within defect portions;

(b) an individual correction value calculation device for obtaining interpolation correction values for correcting the defect portion from information through areas of the image in each of the plurality of directions;

(c) a final correction value calculation device for obtaining, based on amounts of image features of each direction calculated by the feature amount calculation device, a final correction value from correction values calculated for each direction by the individual correction value calculation device; and

(d) a correction device for correcting the defect portion in the electronic information representing the image, using a final correction value calculated by the final correction value calculation device.

9. (original): The image processing device according to claim 8, wherein, as the image feature amount, the feature amount calculation device calculates for each of a plurality of directions at least one of: a density change in the image along a predetermined direction; a change in an amount of non-visible light along a predetermined direction transmitted through the image recording material or reflected by the image recording material when non-visible light is irradiated onto an image recording material on which an image represented by the image information is recorded; a number of defect pixels present on the image within a fixed distance along the predetermined direction; and a distance traced along the image to a point in a

predetermined direction at which normal pixels begin to appear, which do not correspond to a defect portion.

10. (original): The image processing device according to claim 8, wherein at least one of the feature amount calculation device and the individual correction value calculation device performs for each of the plurality of directions a calculation to determine the image feature amount or the correction value in a range as far as to a point, when tracing along the image in a predetermined direction, at which a fixed number of normal pixels begin to appear, which do not correspond to a defect portion.

11. (original): An image processing device for use in producing electronic information representing an image recorded on image recording material, the image processing device comprising:

(a) a calculation device for calculating a brightness alteration amount for correcting a defect portion in the image based on an amount of transmitted or reflected non-visible light in an area adjacent to the defect portion when light is irradiated onto the image recording material, and a difference in the refractive indexes of visible light and non-visible light in the image recording material; and

(b) a correction device for correcting electronic information representing the image such that the brightness of the defect portion of the image represented by the electronic information changes by an amount calculated by the calculation device.

12. (original): The image processing device according to claim 11, wherein the calculation device acquires the feature amount based on one of the type of image recording material and by calculating a ratio of a value obtained when high frequency components are extracted from a change in the amount of transmitted or reflected non-visible light in an area adjacent to the defect portion when non-visible light is irradiated onto the image recording material and a value obtained when high frequency components are extracted from a change in an amount of transmitted or reflected visible light in an area adjacent to the defect portion when visible light is irradiated onto the image recording material.

13. (original): An image processing method, comprising the steps of:

- (a) detecting a defect portion in an image represented by electronic information;
- (b) selecting, based on a characteristic of the defect portion, a correction method from a plurality of correction methods for correcting the defect portion, or a range of application of each of at least two correction methods correcting the defect portion; and
- (c) applying the selected correction method, or the at least two correction methods in the selected application ranges, to the electronic information representing the image.

14. (original): The image processing method according to claim 13, wherein the electronic information represents an image recorded on image recording material, and the step of detecting a defect portion includes the sub-steps of:

- (e) irradiating the image with non-visible light;

(f) photoelectrically converting non-visible light after irradiation of the image therewith, into electronic data; and

(g) detecting the defect portion based on the electronic data.

15. (original): The image processing method according to claim 13, wherein the step of selecting is performed using, as amounts of features of the defect portion in electronic information representing the image, at least one of a correlation of density changes in each component color in an area adjacent to the defect portion; density distribution in areas surrounding the defect portion; whether the defect portion is present within a principal area of the image; and extent of overlap of the defect portion with the principal area.

16. (original): An image processing method comprising the steps of:

(a) calculating image feature amounts for defect portions in an image represented by electronic information along a plurality of different directions running from within each defect portion;

(b) calculating correction values for correcting the defect portions by interpolation from information through areas of the image for each defect portion for each of the plurality of directions;

(c) determining final correction values for each of the directions based on the image feature amounts in each of the directions; and

(d) correcting the defect portions in the electronic information using the final correction values.

17. (original): An image processing method for correcting electronic information representing an image having a defect portion, wherein the image is recorded on image recording material, the method comprising the steps of:

- (a) irradiating the image recorded on image recording material with non-visible light;
- (b) receiving the light after irradiation of the image;
- (c) calculating a brightness alteration amount for correcting a defect portion in the electronic information representing the image, based on the amount of non-visible light received from the image in the step of receiving, in an area adjacent to the defect portion, and on the difference in refractive indexes of visible light and non-visible light in the image recording material; and
- (d) correcting electronic information representing the image so that the brightness of the defect portion in the electronic information changes by an amount calculated in the step of calculating a brightness alteration.

18. (original): A recording medium comprising program steps recorded thereon, which when used to program a computer, cause the computer to execute the following steps:

- (a) detecting a defect portion of an image represented by electronic information;

(b) based on a characteristic of the defect portion, selecting a correction method for correcting the defect portion from a plurality of types of correction methods, or ranges of application of each of at least two correction methods for correcting the defect portion; and

(c) applying the selected correction method to the electronic information, or correcting the defect portion by applying the at least two methods to the electronic information in the selected application ranges.

19. (original): A recording medium comprising program steps recorded thereon, which when used to program a computer, cause the computer to execute the following steps:

(a) calculating image feature characteristics for defect portions in an image represented by electronic information, along a plurality of different directions running from within each defect portion;

(b) calculating correction values for correcting the defect portions by interpolation from information through areas of the image in a plurality of directions for each defect portion;

(c) determining final correction values from the correction values for each of the directions based on the image feature characteristics in; and

(c) applying the final correction values to the electronic information to correct the defect portions.

20. (original): A recording medium comprising program steps recorded thereon, which when used to program a computer, cause the computer to execute the following steps:

(a) calculating a brightness alteration amount for correcting a defect portion in electronic information representing an image recorded on a recording medium, based on an amount of transmitted or reflected non-visible light in an area adjacent to the defect portion when non-visible light is irradiated onto the image recording material, and on the difference in refractive indexes of visible light and non-visible light in the image recording material; and

(b) correcting the brightness in the electronic information so that the brightness of the defect portion changes by the amount calculated in the step of calculating a brightness alteration amount.

21. (new): The image processing device according to claim 1, wherein the plurality of types of correction methods comprises a vignetting method in which image information is corrected by reducing high frequency components of a spatial frequency of a defect portion and an area adjacent to the defect portion.

22. (new): The image processing device according to claim 8, wherein the final correction value calculation device obtains a final correction value by calculating weighting coefficients for each direction based on a density gradient and a distance between normal pixels calculated and stored for each direction.

23. (new): The image processing device according to claim 8, wherein the plurality of different directions from within defect portions radiates outwards from the defect portions.

24. (new): The image processing device according to claim 8, wherein the plurality of different directions from within defect portions comprises a plurality of scanning directions and

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wherein one of the plurality of scanning directions is a straight line in a direction going away from the defect portions and a plurality of the scanning directions are performed in directions 180 degrees opposite each other.